Revista Ecuatoriana de **Ciencia, Tecnología e Innovación en Salud Pública**

CÓDIGO ISSN 2588-0551
DOI: 10.31790/inspilip.v7i22.535

Original Article

Mental health in resident and postgraduate doctors during the COVID-19 Pandemic at the Ambato General Hospital

Salud mental en los médicos residentes asistenciales y de posgrado durante la pandemia COVID–19 en el Hospital General Ambato

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Identification of authors' responsibility and contribution: Authors declare to have contributed original idea (PP), methodological part (systematic review) (PP, CS, MC), draft writing (CS, MC, AB, AA) and article writing (PP, AB, AA)

Date of Entry: 06/05/2022
Date of Aproval: 05/05/2023
Date of Publication: 05/05/2023

Open Access

Citation

Bravo-Paredes L., Paredes-Lascano P., Santana C., et al. Mental health in resident and postgraduate doctors during the COVID-19 Pandemic at the Ambato General Hospital General Ambato. **INSPILIP. 2023; Vol. 7, Num. 22.**

Scientic magazine INSPILIP. Volume 7, Number 22, May - August 2023.

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EDITOR-IN-CHIEF

Abstract

Introduction: In the formative stage of physicians in Ecuador, the work as a resident physician is essential within the acquisition of skills and competencies, through medical care and teaching in hospitals; however, daily work in emergency conditions or other situations can lead to professional exhaustion associated with physical and mental fatigue. **Objective:** To assess the mental health status of 113 resident and postgraduate doctors working during the COVID-19 pandemic at the Ambato General Hospital, during the period of May – July 2020. **Material and methods:** Descriptive research, cross-sectional, quantitative research using a survey and the Maslach Burnout Inventory (MBI) questionnaire, applied to professionals who met the inclusion and exclusion criteria. **Results:** The studied population ranged from 25 to 44 years old and had a mean age of 30 years, a 56% belonging to the female sex. The most affected in the mental health spheres were behavioral and physical. Burnout syndrome was detected in 25% of resident physicians, with a predominance in 14% of the male sex, with the highest affectation of the high emotional exhaustion subscale (71%). **Conclusions:** It is concluded that the findings could be associated with the current health condition due to the SARS-COV2 health emergency, in addition to corresponding to situations that are not attended to in a timely manner, so it is recommended that personalized interventions be carried out through coordination between Occupational Medicine, Psychology Service and Psychiatry of the hospital.

Keywords: Burnout, Lifestyle, Pandemic, Residents, Mental health.

Resumen

Introducción: *En la etapa formativa de los médicos en Ecuador, el trabajo como médico residente es primordial dentro de la adquisición de habilidades ycompetencias, mediante el trabajo asistencial y docente en los hospitales; sin embargo, el trabajo cotidiano en condiciones de emergencia u otras situaciones,puede dar lugar a un desgaste profesional asocia do al cansancio físico y mental.* ***Objetivo.*** *El objetivo de esta investigación es cualificar el estado de salud mental de 113 médicos residentes asistenciales y de posgrado que laboran durante la pandemia COVID -19 en el Hospital General Ambato, durante el período mayo – julio 2020; para lo que se empleó una investigación descriptiva, transversal, cuantitativa, en el cual se utilizó una encuesta y el cuestionario Maslach Burnout Inventory (MBI), aplicados a los profesionales que cumplieron los criterios de inclusión y exclusión. Los resultados evidencian: edad con un rango de 25 a 44 años y una media de 30 años de edad, de los cuales corresponden al sexo femenino en el 56 %. La mayor afectación dentro las esferas de salud mental fueron la conductual como son: el aislamiento, dificultad para el autocuidado y el descanso, y en cuanto a la física: predominaron cefaleas. molestias gastrointestinales y las contracturas musculares. El síndrome de Burnout fue detectado en el 25 % de médicos residentes, de predominio en el sexo masculino en el 14 %, con mayor afectación en la subescala de cansancio emocional (71 %). Este estudio concluyó en que los hallazgos podrían estar asociados a la condición desalud actual por la emergencia sanitaria del SARS-CoV-2, además que corresponden a situaciones que no son atendidas oportunamente, por lo que se recomienda se realicen intervenciones personalizadas con acciones coordinadas entre Medicina Ocupacional, Servicio de Psicología y Psiquiatría del hospital.*

***Palabras* clave:** *Burnout, Estilo de vida, Pandemia, Residentes, Salud mental.*

Introduction

Burnout is a disorder that undoubtedly affects the mental health of resident physicians (RP), and has a direct impact on the quality of patient care and the doctor's quality of life (1). Mental health is defined as a broad term that implies social aspects, which influence the well-being of the population, and for its maintenance it includes actions aimed at prevention, promotion, care and treatment, complementing by indicating that mental health encompasses four spheres: emotional, cognitive, behavioral and physical, which can be altered by the increase in the workload. the constant pressures of time, the endless bureaucratic tasks that culminate in a progressive loss of enthusiasm at work (2).

Medical residency is an immensely stressful period with long working hours and demanding work schedules, with interference in professionals' work and home. Several stressors predispose residents to burnout, including lack of sleep, conflicts with co-workers, difficulty adjusting to a new environment, patient demands, and lack of control over time management. In addition, people who are inherently neurotic or introverted are at higher risk, which would contribute to the onset of burnout. (1)

"Burnout" was first described in 1974 by psychologist Herbert Freudenberger. It is defined as a condition of physical and mental exhaustion related to caregiving activities and arises as a result of chronic exposure to interpersonal stressors at work. (2)The World Health Organization (WHO) in the tenth revision of its International Classification of Diseases, described it as "a state of vital exhaustion" (3) which has three main dimensions: emotional exhaustion, depersonalization, and feelings of ineffectiveness and inadequate personal achievement (4).

The Maslach Burnout Inventory (MBI) is considered the gold standard for measuring healthcare provider burnout (5), is the tool used to assess burnout and comprises 22 items divided into three subscales: the emotional exhaustion subscale (9 questions): assesses burnout at work and feeling on edge; The Depersonalization subscale (5 questions) assesses lack of empathy and impersonal responses, and the Personal Achievement subscale (8 questions) assesses the sense of accomplishment of success and competence at work.

Each item is rated on a Likert scale from 0 to 6 (0 = never, 1 = few times a year, 2 = once a month, 3 = few times a month, 4 = once a week, 5 = few times a week, 6 = daily) and consist of questions such as "I feel like I'm working too hard at my job," "I feel emotionally drained by my job" and "Working with people all day is really a strain for me." The total cut-off scores for emotional exhaustion are greater than or equal to 27, for depersonalization greater than 9, and less than or equal to 33 for poor personal performance. (3)

Burnout among healthcare professionals has received significant attention in recent years. Given the intense emotional demands of the work environment, clinicians are particularly susceptible to developing burnout beyond the usual work stress. RP training, in particular,

can cause a significant degree of burnout, which interferes with the ability to build good relationships with colleagues and patients, resolve diagnostic dilemmas, and make complex treatment decisions.(3)

Overall, burnout is associated with a variety of negative consequences including depression, risk of medical errors, and negative effects on patient safety (3), this increases in emergency situations such as the current pandemic of COVID-19, where Healthcare workers are at significant risk of adverse mental health outcomes. Reasons for this include long working hours, perceived risk of infection, shortage of protective equipment, loneliness, physical fatigue, and separation from families (6).

This research aims to evaluate the mental health of RPs in a general hospital during the Covid-19 pandemic, as well as to analyze changes in lifestyles at a personal, family and work level, since being a current issue, it will allow us to have our own information that supports actions of prevention and promotion of mental health. As a means to guarantee the right to health and timely and comprehensive care of medical personnel at the institutional level.

Methodology

A cross-sectional descriptive study was carried out between May – July 2020. The study population is made up of 113 RPs from Ambato General Hospital, of which ninety-four are healthcare RPs and 19 are RPs from the postgraduate specialization in Family and Community Medicine. Included in the study were RPs regardless of working time and type of contract and who voluntarily agreed to participate, signing the informed consent submitted by the researchers, with the prior approval of the Hospital authorities.

Two instruments were applied: a) a structured survey that collected informative data from the participants, their comorbidities, work area, history of contagion, and the impact on quality of life associated with the physical, mental, behavioral, and cognitive spheres associated with the COVID-19 pandemic. B), the MBI questionnaire that independently assesses the emotional exhaustion subscale (low: 0-18, medium 19-27, high 28-54); The depersonalization subscale (low: 0-5, medium 6 -9, High 10 - 30) and the Personal Achievement Subscale (low 0 - 33, Mid 34 - 39 High 40 - 56), burnout syndrome was defined as participants who met 3 criteria: high depersonalization, high emotional exhaustion, and low personal achievement (3).

The application of the instruments was conducted in a reserved space in each of the hospital's services, each professional answered the survey and the MBI questionnaire independently, if there were any doubts they were clarified by the researchers. From the ethical point of view, the confidentiality and privacy of the participants was guaranteed through the assignment of an alphanumeric code to the instruments applied in the research, access to the information was not allowed to people outside the research, each participant in the exercise of his or her autonomy freely and voluntarily decided to sign the informed consent form and respond to the research instruments.

Once the information was collected, it was processed using the Excel program, the results are presented through graphs and tables, as well as descriptive and inferential statistics.

Results

Demographic and clinical characteristics

The study population consisted of 113 physicians, whose age range was 25 to 44 years with a mean age of 30 years; Of those, 56% were women, 60% were single; Regarding the place of residence, 64% (72) live in the city of Ambato, although 36% of the doctors live in nearby provinces.

On the other hand, 67% (65) live with family members who belong to priority groups (children under 5 years of age, chronically ill, older adults, and people with disabilities). 21% reported a history of various diseases, establishing that migraine and thyroid conditions are the most prevalent (Table 1); It should be noted that there are two people with depressive anxiety disorder prior to the pandemic, who are at greater risk of suffering from work burnout (1).

Table 1: Morbidity in RP. Ambato General Hospital. May - July 2020

Morbidity	Frequency	%
Allergic Rhinitis	2	2
Migraine	5	4
Ventricular Hypertrophy	1	1
Bronchial Asthma	3	3
Reactive Arthritis	1	1
Thyroid Conditions	4	4
Hernia Inguinal	2	2
Gastroesophageal reflux	3	3
Obesity	1	1
Depressive Anxiety Disorder	2	2
None	89	79
Total	113	100

Source and elaboration: Authors

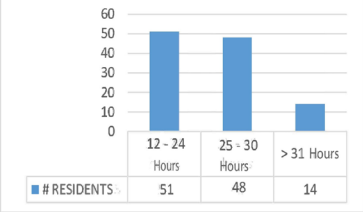
Exposure to SARS-COV2:

So far in the pandemic, 17 doctors (15%) have been diagnosed with COVID-19; Of these, ten had mild symptoms and seven had moderate symptoms. None required inpatient treatment. 30% (34 people) reported having a family member with a positive diagnosis, and 11% (12 people) have lost a family member to COVID-19.

Working time

The working hours of the RPs under investigation are diverse: they work in shifts that last between 12 and 36 hours (Figure 1). Intervals between shifts range from two to six days; with a predominance every fifth day in 69%, while the longest intervals were observed in the RPs of the Intensive Care Unit, although these professionals work long days of 36 hours. Additionally, 81% of resident doctors state that the workload has increased during this health emergency.

Figure 1: Schedule of the RP. Ambato General Hospital. May - July 2020



Source and elaboration: Authors

Lifestyle

The main change in their lifestyle was isolation from the family for fear of contagion, which occurred in 69% of the participants; isolation from friends exists 56%; loss of contact occurs in 33%, sports and recreation habits have disappeared in 16% of RPs. Two out of every three RPs stated that their financial situation has been greatly affected by the pandemic, due to additional expenses such as rent, food, mobilization, and purchase of personal protective equipment to fulfill their work, while 7% (8) have become their families' only income.

COVID 19 pandemic and work environment

65% have received training on the use of personal protective equipment, while 61% have been trained in caring for COVID patients in each of their areas. It was observed that more than seven out of ten RPs indicated that they have little confidence in the management of the authorities, arguing that they carry out a management that does not respond to the needs of hospital staff in terms of the provision of personal protective equipment and clothing, they consider that there is an inadequate distribution of resources and hospital staff.

Only one in four RPs have received psychological support during the pandemic. In addition, three out of ten RPs perceive attitudes of social and psychological discrimination on the part of patients, relatives, neighbors, among others, both inside and outside the institution.

Mental health

Emotional and Behavioral Sphere

The survey established that, in the emotional sphere, the most frequent manifestations were anxiety (27%), fear (23%) and sadness (13%), with non-significant differences between men and women (Table 2). Changes in the cognitive sphere, where the most frequent are difficulty concentrating (33%), presence of nightmares (23%), memory difficulty and confusion (12%). No significant differences were found according to sex of RPs.

Table 2: Emotional and cognitive sphere, RP. Ambato General Hospital. May - July 2020

Emotional Sphere	Women		Man		Total	
	N°	%	N°	%	N	%
Anxiety	16	14	14	12	30	27
Impotence	7	6	2	2	9	8
Frustration	6	5	6	5	12	11
Fear	15	13	11	10	26	23
Fault	3	3	3	3	6	5
Irritability	6	5	4	4	10	9
Sadness	8	7	7	6	15	13
Emotional Anesthesia	2	2	3	3	5	4
TOTAL	63	56	50	44	113	100
Cognitive Sphere	Women		Men		Total	
	N	%	N	%	N	%
Confusion	7	6	6	5	13	12
Difficulty Concentrating	22	20	15	13	37	33
Memory Difficulty	7	6	6	5	13	12
Obsessive thoughts and doubts	6	5	1	1	7	6
Nightmares	14	12	12	11	26	23
Compassion Fatigue	4	4	5	4	9	8
Negation	1	1	2	2	3	3
Sense of Unreality	2	2	3	3	5	4
Total	63	56	50	44	113	100

Source and elaboration: Authors

Behavioral and Physical Sphere

The most frequent behavioral changes among hospital RPs are isolation present in 58% of RPs; difficulty in self-care and rest was present in 21%, avoiding conflict situations (14%), while in the physical sphere, headaches (38%), gastrointestinal discomfort (24%) and muscle contractures (20%) predominated (Table 3).

Table 3: Behavioral and physical sphere, RP. Ambato General Hospital. May - July 2020

Behavioral Sphere	Women		Men		Total	
	N	%	N	%	N	%
Hyperactivity	2	2	1	1	3	3
Isolation	35	31	30	26	65	58
Conflict Avoidance	9	8	7	6	16	14
Verbiage	1	1	0	0	1	1
Uncontrolled crying	3	3	1	1	4	4
Difficulty with self-care	13	12	11	10	24	21
Total	63	56	50	44	113	100
Physical Sphere	Women		Men		Total	
	N	%	N	%	N	%
Breathing difficulties	1	1	1	1	2	2
Chest pain	4	4	0	0	4	4
Excessive sweating	1	1	1	1	2	2
Tremors	1	1	1	1	2	2
Headache	19	17	24	21	43	38
Dizziness	4	4	2	2	6	5
Gastrointestinal Discomfort	18	16	9	8	27	24
Muscle Contractures	13	12	10	9	23	20
Tachycardia	1	1	2	2	3	3
Paresthesias	1	1	0	0	1	1
Total	63	56	50	44	113	100

Source and elaboration: Authors

Results of the Maslach Burnout Inventory (MBI) Questionnaire

It is established that 71% of the RPs present Emotional Fatigue at a high level, work depersonalization at a high level in 55%, with respect to personal fulfillment a medium level is determined with 45%, more frequently in men. (Table 4).

Table 4: MBI results. RP. Ambato General Hospital. May - July 2020

Subscales	Women						Men						Total					
	Low		Middle		High		Low		Middle		High		Low		Middle		High	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Emotional Exhaustion	8	13	11	17	44	70	4	8	10	19	36	73	12	10	21	19	80	71
Depersonalization	20	32	13	20	30	48	11	22	7	15	32	63	31	27	20	18	62	55
Personal Fulfillment	22	35	26	41	15	25	16	33	25	50	9	17	38	34	51	45	24	21

Source and elaboration: Authors

Once the levels according to the risk in each subscale have been established, burnout is determined in 25% of RP, which is prevalent in men in 14%, with a 51% risk of developing it in women (Table 5).

Table 5: MBI results. RP. Ambato General Hospital. May - July 2020

	WOMEN		MEN		TOTAL	
	N	%	N	%	N	%
Burnout	12	11	16	14	28	**25**
Risk-free	16	14	11	10	27	24
Risk	35	**31**	23	20	58	**51**
Total	63	56	50	44	113	100

Source and elaboration: The authors

Discussion

The demographic and clinical data show that the research was carried out with a group of young doctors who are doing their residency at the hospital, without significant differences in gender, some of the RPs presented comorbidities being respiratory conditions and thyroid diseases the most frequent, in the family environment 65% of them live with vulnerable people, who may be at risk for severe illness from COVID-19 (7)What the prevalence of underlying diseases, They increase the risk of complications.

Contagion during the emergency represents 15% of RPs have been diagnosed with COVID-19 positive. Frontline healthcare workers face a substantially increased risk of infection and death due to excessive exposure to COVID-19 and potentially spreading to others, contributing to the pressures and concerns of healthcare professionals(8) (9).

In this research, it can also be observed that there is discrimination against health personnel in the personal, family and social spheres of psychological predominance, Bedoya (2020) in his research describes an increase in discrimination and physical, verbal and psychological aggressions against health personnel with the COVID-19 pandemic, this reaction on the part of some people points to beliefs and irrationality to face them, since medical personnel symbolically represent the disease itself and the cure (10).

There is a broad consensus that the COVID-19 pandemic affects not only physical health, but also mental health, this has upset doctors' sense of order and control. Such disruption can lead to substantial short-term stress and an increased risk of long-term burnout (11), all this due to the increase in patient demand in hospitals that is challenging the agenda of health professionals with an increase in their workload (12), This coincides with the results of this study where 81% of RP report that their workload is greater, because in the process of containing the pandemic, this institution became a sentinel hospital, which led to a readjustment of work for all staff, without RPs being the exception.

In this research, mental health is analyzed from four spheres, finding affectation in order of frequency: in the behavioral scale, isolation in 58%; on the physical scale, the presence of headache in 38%; On the cognitive scale, there

is difficulty concentrating in 33% and on the emotional scale the presence of anxiety in 27%, so it is imperative to analyze the effects on the mental spheres faced by health personnel (13), these mental health problems not only affect the quality of care, but also their capacity for clinical understanding or their decision-making skills, therefore, it is very important to protect the mental health of health personnel for the proper control of the pandemic (14).

On the other hand, the doctors received some form of psychological support and even group intervention (15), psychological first aid is also a crucial early intervention that targets the mental health of frontline staff by providing psychosocial support during outbreaks such as COVID-19 and is a tool designed to mitigate acute distress and assess the need for ongoing mental health care through a compassionate and caring presence (16).

In the present research, psychological support is limited as only 1 in 4 doctors have received such care, which may be due to the fact that doctors not only have difficulty sharing their concerns about mental health with their colleagues, but are also often reluctant to seek psychological help (17), this clearly demonstrates that there is no culture of mental health care whose reasons need to be thoroughly investigated in the future, as the problem needs to be addressed in greater depth. Much more so when it comes to the mental health of the resident medical staff, who in turn have a trust of only 26% in the hospital authorities, because they are dedicated only to office work, do not provide the necessary equipment, there is poor management of resources and personnel, protective implements and the treatment of patients in each of the services.

From this perspective, one of the most severe conditions is the identification of burnout syndrome, which was established in 25% and the risk of suffering from it is found in 51% of the hospital's RPs, with affectation of the subscale of high emotional fatigue 71%, high work depersonalization 55% and low personal fulfillment 34%. compared to a study conducted by (18) In the same hospital, the risk of burnout syndrome was identified, with affectation of the subscale of high emotional exhaustion 14%, high depersonalization 4% and low personal fulfillment in 2%, which differs abysmally the results in times of pandemic, it was also compared with other studies such as that of (19) where showed high scores of Emotional Exhaustion high levels of depersonalization, while only about 15% reported low levels of personal fulfillment.

The high figures detected in this study may be related to the extension of working days that reach up to 36 hours and the fact of attending daily to people suspected or confirmed of COVID 19 infection, the fear of bringing the infection to their homes, in addition to having to change their professional and family activities due to the presence of the pandemic.

In this way, the alterations found in the research may be the result not only of a workload, but also of the lack of adequate plans for psychosocial interventions, this psychological support based on multidisciplinary teams, where general measures are taken with shorter working hours, regular rest periods and rotating shifts for those who work in high-risk areas (20).

It should be noted that at the time of the investigation 19.6 million people infected with coronavirus around the world, according to data from the Johns Hopkins University, while the death toll has surpassed the 727,000 deaths (21), at the level of Ecuador since March 5, when the first case of Coronavirus was detected in Machala, 94,701 infections and 9471 deaths have been registered, data updated until August 10, 2020 (22).

Conclusions

The mental health of RPs was affected in all four spheres, with isolation predominating on the behavioral scale, headaches on the physical scale, difficulty concentrating on the cognitive scale, and anxiety on the emotional scale, so an affected professional cannot provide a quality service and is more likely to make errors in diagnosis or treatment.

Burnout syndrome in the studied population occurs in almost 4 out of 10 RP, with greater affectation in the emotional fatigue subscale, predominant in men, in addition to the risk of suffering from this syndrome in more than half of the cases, with prevalence in women, which may be related to workload or overwork. lack of sleep, excessive rotations or shifts and the health emergency that the world and the country are going through,

which act directly to trigger professional burnout.

Likewise, we intend that from this diagnosis of the situation, intervention strategies can be generated that allow treating, eradicating and preventing this syndrome, with these results being the starting point to propose new research such as the response to treatment and the follow-up of the cases detected.

In addition, taking into consideration that the RPs have worked on the front line during the pandemic, and the provisions of the Organic Law on Humanitarian Support to combat the Health Crisis derived from Covid-19, which indicates that the definitive appointment will be granted to health workers and professionals who have worked during the health emergency, since the hospital's RPs, not having job stability, generates concern, which can have an impact on the performance of their duties.

Source of funding

Work was done with the authors' own resources

Conflict of interest

The authors declare that they have no conflict of interest

Thanks

The present research would not have been possible without the support of the Ambato General Hospital, which has allowed us to carry out this work, as well as highlighting the collaboration of each of the resident doctors, who gave us their time and predisposition to provide us with the data that allow us to develop this research with the sole purpose of contributing positively from the academy with real data on a current and profitable topic for the public. the medical community.

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